





2009

# Red Teaming IED Attacks, Joint Improvised Explosive Device Defeat Organization / Research Project Outline

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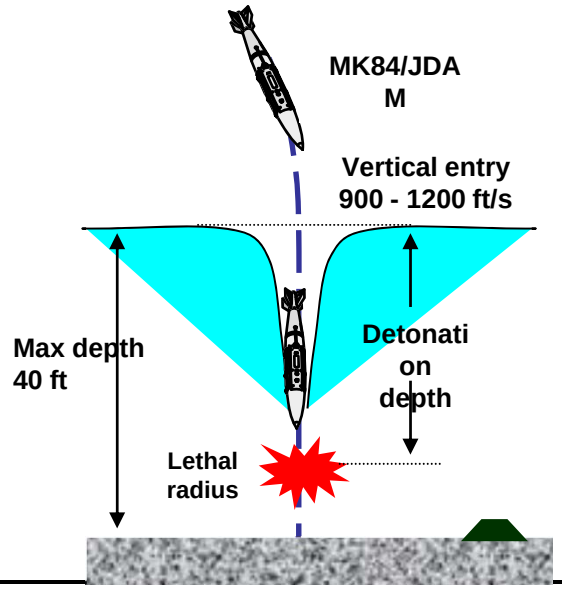
NAVAL POSTGRADUATE SCHOOL

# Red Teaming IED Attacks in Shallow Water Identification and Attack of Underwater IEDs




**Description:**

The Armed Forces require a capability to rapidly clear IEDs. in the very shallow water. This threat, requirement, and clearance capability needs to be represented in our counter-IED models. This research provides a supporting model that allows a Joint Direct Attack Munition (JDAM) Assault Breaching System (JABS) from beach/surf /fording zones to examined in an integrated red teaming model..

**Key Participants:**

Peter C Chu (OC Dept, NPS), LCDR Jillene Bushnell (NPS)
Kennard Watson (Naval Surface Warfare Center)
Bill Nevins (Naval Air Warfare Center Weapons Division)
Brian Almquist (Office of Naval Research)

**Objectives:**

The primary objective is the development of a 6-DOF model to predict underwater rigid-body (low velocity for mine, high velocity for bomb) trajectory and orientation. This model will be used to provide accurate predictions of underwater trajectory of Mk-84 bomb from launch until final detonation for effective IED breaching in shallow water.

**Milestones to Fielding Capability:**

1. Develop a 6 DOF model for accurately predicting Mk-84 trajectory in the water column
2. Test and Refine the model using the data collected at the NAWCWD exercise in March 2008

**Key Deliverables:**

- A series of reports will be produced documenting the results.
- The results will be presented at the regular JIEDDO meetings and copies of the presentations will be available to the sponsor and participants.
- All models and simulations created in this effort will be saved in an appropriate medium (i.e. DVD) and will be available to the sponsor and participants.
- A thesis by LCDR Bushnell will be completed by September 2009.

**Budget: (2005-2006)** $76,322